



P. RAMI REDDY MEMORIAL COLLEGE OF PHARMACY

44/35-1, Prakruthi Nagar, Utukur, Kadapa – 516 003 A.P.

Approved by AICTE & PCI, New Delhi, Recognised by Govt. of A.P.

Affiliated to JNTUA, Ananthapuramu. Recognised U/S 2(f) & 12(B) of UGC Act, 1956.

COURSE OUTCOMES – M.PHARMACY (PHARMACEUTICAL ANALYSIS)

M.Pharmacy (Pharmaceutical Analysis) I Year I Semester (R21) (I Semester)

Subject Name & Code	CO's Number	Course Outcomes (CO'S) Upon completion of the course student will be able to
Modern Pharmaceutical Analytical Techniques 21S01101	C07111.1	Understand the principle and instrumentation, Applications of various spectroscopic techniques like UV-Visible, IR and spectrofluorimetry and flame emission and atomic absorption spectroscopy.
	C07111.2	Learn and apply the knowledge of NMR-Spectroscopy instruments for effective practical handling and use.
	C07111.3	Gain knowledge on mass spectroscopic technique for the qualitative and quantitative evaluation of drug.
	C07111.4	Develop the Chromatographic techniques for identification, characterization and quantification of drugs.
	C07111.5	Explain Instrumentation and relate identification of compounds by electrophoresis technique and X-ray crystallography and Immunological assays.
Advanced Pharmaceutical Analysis 21S07101	C07112.1	Analysis of impurities in drugs, residual solvents and stability studies of drugs and biological products.
	C07112.2	Gain knowledge on Elemental impurities and stability testing protocols for various pharmaceutical compounds.
	C07112.3	Develop the methods and follow ICH guidelines for testing the drugs.
	C07112.4	biological testing of various vaccines and their principle and procedures.
	C07112.5	Knowledge on Immunoassays for quantification of drugs.
Pharmaceutical and Food Analysis 21S07102	C07113.1	Understand Food regulation and Legislations and methods of analysis of Carbohydrates and Proteins.
	C07113.2	Determine Lipids and Vitamins using various analytical techniques.
	C07113.3	Learn about Probiotics and its application to Pharmacy.
	C07113.4	Analyse and apply various analytical techniques to determine Food additives, Food constituents, Pigments and synthetic dyes used in Pharmaceuticals.
	C07113.5	Understand analytical methods used to analyse milk products and Finished products.



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M.Pharmacy (Pharmaceutical Analysis) I Year I Semester (R21) (I Semester)

Subject Name & Code	CO's Number	Course Outcomes (CO'S) Upon completion of the course student will be able to
Quality Control and Quality Assurance 21S07103	C07114.1	Understand regulation and Legislations of Regulatory bodies like ICH, GMP & GLP.
	C07114.2	Explain cGMP aspects in Pharmaceutical Industry, USFDA, WHO and EMEA.
	C07114.3	Learn Analysis of raw materials, QC tests for formulations as per IP, BP and USP.
	C07114.4	Appreciate importance of documentation in Industry and to understand scope of Quality certifications applicable in Pharmaceutical Industry.
	C07114.5	Understand QC & QA department responsibilities in regard of manufacturing operations and controls.
Modern Pharmaceutical Analytical Techniques Lab 21S01105	C07115.1	Analysis of pharmacopoeial compounds by spectroscopic technique
	C07115.2	Perform to select suitable analytical techniques for the qualitative and quantitative evaluation of drugs
	C07115.3	Apply the theoretical knowledge of instruments for effective practical handling and use.
	C07115.4	Estimate the compounds by various chromatographic compounds
	C07115.5	Evaluate structure of organic compounds using suitable spectroscopic tools
Pharmaceutical and Food Analysis Lab 21S07104	C07116.1	Determine Proteins, total reducing sugars, Acid value, saponification value etc., using various analytical Techniques
	C07116.2	Perform analysis of fat content, vitamin content and rancidity in food products
	C07116.3	Estimate natural and synthetic colors, Preservatives and Preservative residue content in food.
	C07116.4	Analyse density and specific gravity of foods
	C07116.5	Conduct Assay of API and Dosage forms official in IP



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M.Pharmacy (Pharmaceutical Analysis) I Year II Semester (R21) (II Semester)

Subject Name & Code	CO's Number	Course Outcomes (CO'S) Upon completion of the course student will be able to
Advanced Instrumental Analysis 21S07201	C07121.1	Elaborate knowledge on HPLC in the field of nanotechnology and approaches for advancement in enantiomeric separations.
	C07121.2	Know about advanced biochromatographical techniques and its approaches and derivatization.
	C07121.3	Learn overview of electrophoretic technique by capillary electrophoresis.
	C07121.4	Knowledge on spectroscopic techniques by hyphenation techniques in LC-MS and DART MS analysis.
	C07121.5	Gain knowledge on NMR Spectroscopy and also ¹³ C NMR, 1-D and 2-D NMR, NOESY and COSY techniques.
Modern Bio-Analytical Techniques 21S07202	C07122.1	Acquire knowledge about the importance of analysis of drugs in biological matrices.
	C07122.2	Understand the bio availability of pharmaceutical drugs in In-vitro and In-vivo and In-situ methods.
	C07122.3	Learn drug interactions by pharmacokinetic and pharmacodynamic parameters.
	C07122.4	Know fulfill about cell culture techniques and its applications including MTT.
	C07122.5	Appreciate knowledge on LC-MS in bioactivity screening and proteomics.
Pharmaceutical Validation 21SOE301a	C07123.1	Understand concepts and aspects of Validation and Qualifications included in Equipment Validation.
	C07123.2	Apply Knowledge of Validation to Instruments and Equipment's.
	C07123.3	Validate the manufacturing Facilities and Utilities like HVAC.
	C07123.4	Carry out Validation of Manufacturing Processes.
	C07123.5	Learn and Understand Principles of Intellectual Property Rights.
Herbal and Cosmetic Analysis 21S07203	C07124.1	Understand Herbal Remedies and Regulations.
	C07124.2	Illustrate Adulteration and Deterioration of Herbal drugs.
	C07124.3	Learn Analysis of natural products and monographs.
	C07124.4	Determination of Herbal Drug-Drug Interaction.
	C07124.5	Gain Knowledge on Principles of Performance Evaluation of Cosmetic Products.



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Subject Name & Code	CO's Number	Course Outcomes (CO'S) Upon completion of the course student will be able to
Advanced Instrumental Analysis Lab 21S07204	C07125.1	Demonstrate separation of drugs from biological samples using different techniques by UV and Woodward-fiesure rule.
	C07125.2	Interpretation of different organic compounds by FT-IR and NMR and MS spectroscopy techniques.
	C07125.3	Determine the purity of pharmaceuticals by DSC.
	C07125.4	Perform Extraction of drugs from biological samples as per official monographs.
	C07125.5	Analyse the calibration and validation of analytical equipment.
Modern Bio-Analytical Techniques Lab 21S07205	C07126.1	Demonstrate separation of drugs from biological samples using different techniques.
	C07126.2	Interpret the guidelines for BA/BE studies according to guidelines
	C07126.3	Perform separation of bio molecules by quantitative analysis of components by HPLC and gelelectrophoresis technique.
	C07126.4	Analyze isolation of analgesics from body fluids and identify antihistaminic's by TLC
	C07126.5	Conduct separation of modern drugs from plasma and its formulations



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M.Pharmacy (Pharmaceutical Analysis) II Year I Semester (R21) (III Semester)		
Subject Name & Code	CO's Number	Course Outcomes (CO'S) Upon completion of the course student will be able to
Research Methodology and Intellectual Property Rights 21DRM101	C07211.1	Illustrate research problem formulation.
	C07211.2	Analyze research related information and research ethics.
	C07211.3	Learn how to write research proposal and the effective technical writing.
	C07211.4	Explain how IPR would take such important place in growth of individuals & nation, to summarize the need of information about Intellectual Property Right to be promoted among student community.
	C07211.5	Relate that IPR protection provides an incentive to inventors for further research work and investment in R & D, which leads to creation of new and better products, and in turn brings about economic growth and social benefits.
Biological Screening Methods 21SOE301d	C07212.1	Study the principles, techniques and strategies used in new drug discovery process.
	C07212.2	Understand the basic principles, experimental models and to analyze the statistical designs employed in biological standardization.
	C07212.3	Explain about the toxic evaluations as per the ICH recommendations and study the general principles and procedures involved in them.
	C07212.4	Describe the various newer screening methods involved in the drug discovery process for different classes of drugs.
	C07212.5	Describe the various newer enzymatic screening methods involved in the drug discovery process.